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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Arkady Cherkassky

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10/13/2006

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EXAMINER

AZARIAN, SEYED H

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,858

Applicant(s)

CHERKASSKY ET AL.

Examiner

Seyed Azarian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 1 objected to because of the following informalities: line 6 after phrase "portion of" word -- aid -- should be -- said --. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-24, are rejected under 35 U.S.C. 103(a) as being unpatentable over Vachtsevanos et al (U.S. patent 5,936,665) in view of Hu et al (U.S. patent 6,728,593).

Regarding claim 1, Vachtsevanos discloses an apparatus for the detection of fabric surface protrusions and the classification of fabric quality according to the geometrical parameters and population density thereof, said apparatus comprising (see abstract, method of counting pilling in textile fabrics for quality);

(a) a conveyor mechanism for providing incremental movement of a fabric to be graded supported on said conveyor mechanism (Fig. 1, shown feeding mechanism, also column 3, line 58 through column 4, line 3, fabric feed mechanism consist of a feed forward/rotatable stepper motor connected to a rotatable mounting to which the fabric sample is affixed);

(b) a mechanism that intermittently drives said conveyor in a direction perpendicular to the axis of said small-radius element to expose successive bending lines and fabric surface (Fig. 1, column 2, lines 9-34, the fabric sample as the sample is rotated via the controlled driving mechanism exposing consecutive sections of the fabric samples to the camera's field of view);

(c) a fixed position image capture device focused on said fabric surface and surface protrusions above the fabric surface and along each of said exposed successive bending lines, said device being actuated automatically when said conveyor is at rest between intermittent movements (column 3, line 58 through column 4, line 13, refer to the mounting is controlled by a compatible position controller and time);

(d) lighting means for said silhouette of said surface and surface protrusions, said lighting means being arranged to provide a constant degree of illumination to said exposed successive bending lines (column 3, lines 42-49, UV light provides the best contrast between the image of fabric);

(e) a processor arranged to receive data defining a set off successive two dimensional fabric images from said image capture device (column 4, lines 15-32, a two dimensional image of the fabric is captured).

(f) a counting device operationally connected to said processor for recognizing said fabric surface, and surface protrusions and recording the number thereof (column 1, lines 55-65, using data processing software procedure for counting the number of pilling);

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(g) an automatic measuring device connected to said processor for recognizing said fabric surface and surface protrusions and calculating and recording the geometrical parameters of said protrusions (column 1, lines 55-65, using data processing software procedure for counting the number of pilling, also Fig.10, column 5, lines 5-25, refer to fabric rating);

(h) a neural network arranged to receive outputs of said counter and said automatic measuring device and to calculate a numeric value corresponding to said geometrical parameters and number of said fabric surface protrusions, and to calculate and display a grade number relating said fabric being tested to corresponding industry grade standards (column 1, lines 55-65, using data processing software procedure for counting the number of pilling, also column 4, lines 3-13, graphical displays indicating different logical steps of the pilling count apparatus),

However Vachtsevanos discloses (Fig. 1, elements 18 and 28 shown feeding mechanism of fabric, also column 3, line 58 through column 4, line3, fabric feed mechanism consist of a feed forward/rotatable stepper motor connected to a rotatable mounting to which the fabric sample is affixed). But does not explicitly state its corresponding " fabric are bent so that the silhouette of said surface protrusions may be viewed". On the other hand Hu in the same field of analysis of fabric surface teaches (see abstract, analyzing fabric surface includes a feed mechanism for running a fabric over a crest including a frame for holding the fabric bent to form a crest, an image capturing device of the fabric surface. The computer system produces a three-

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dimensional representation of the fabric surface and comparing to identify a grade for the fabric).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Vachtsevanos invention according to the teaching of Hu because it provides analysis of fabric surface appearance and standard, objective, evaluation of fabric grade for better quality and accuracy.

Regarding claim 2, Vachtsevanos discloses the mechanism as claimed in claim 1, wherein said small-radius element is rotatable (Fig. 1, column 3, lines 57 through column 4, line 13, fabric feed mechanism consists of rotatable mounting 28).

Regarding claim 3, Vachtsevanos discloses the mechanism as claimed in claim 1, further provided with a background screen position able in view of said image capture device so that said image capture device sees said silhouette of said surface and surface protrusions against said background screen (column 1, line 66 through column 2, line 9, refer to dark and white background, also column 4, lines 33-42).

Regarding claim 4, Vachtsevanos discloses the mechanism as claimed in claim 3, wherein the color of said screen can be changed (column 1, line 66 through column 2, line 9, refer to dark and white colors, also Fig. 1, column 3, lines 7-16).

Regarding claim 5, Vachtsevanos discloses the mechanism as claimed in claim 3, wherein the opacity/translucency of said screen can be changed to enhance the contrast of said fabric as seen by said detection device (see abstract, a system processor then processes the images to enhance image quality).

Regarding claim 7, Vachtsevanos discloses an apparatus for the detection of fabric surface protrusions and the classification of fabric quality substantially as described hereinbefore and with reference to the accompanying drawings (column 2, lines 9-34, classify the test fabric samples into one of five quality classes).

Regarding claim 9, Vachtsevanos discloses a method for the classification of fabric quality as claimed in claim 8 wherein the protrusions are the result of pilling of a fabric surface (Fig. 1, column 3, lines 6-16, automatic pilling detection that give consistent results fro fabrics).

Regarding claim 10, Vachtsevanos discloses a method for the classification of fabric quality as claimed in claim 8 wherein the protrusions are the result of snagging of a fabric surface (column 5, lines 16-26).

With regard to claims 6, 8 and 11-12, the arguments analogous to those presented above for claims 1, 3, 7 and 9 are respectively applicable to claims 6, 8 and 11-12.

Other prior art cited

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(U.S. patent 5,774,177) to Lane is cited for textile fabric inspection system.

(U.S. patent 6,517,651) to Azulay is cited for apparatus and method for joining fabrics without sewing.

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(U.S. patent 6,987,867) to Meier et al is cited for process for evaluation data from textile fabrics.

(U.S. patent 6,501,086) to Leuenberger is cited for method and device for evaluating defects in flat textile structures.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.

Status information about the PAIR system, see [http:// pair-direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seyed Azarian
Patent Examiner
Group Art Unit 2624
October 8, 2006

